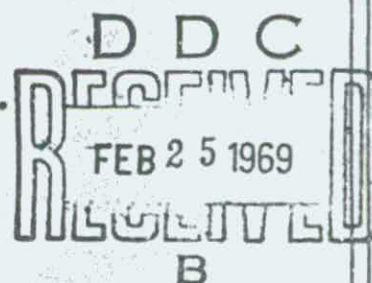


AD 682473



MEMORANDUM REPORT NO. 68-8



CONSERVATIVE MANAGEMENT OF MANDIBULAR INCISORS
WITH A LARGE AREA OF BONE INVOLVEMENT:

Report of A Case

by

LT John L. Giunta, USNR and LT Bruce W. Wisner, DC, USNR

Bureau of Medicine and Surgery, Navy Department
Research Work Unit MR005.19-6024.02

Released by:

Gerald J. Duffner, CAPT MC USN
COMMANDING OFFICER
Naval Submarine Medical Center

16 April 1968



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Submarine Medical Research Laboratory
NAVAL SUBMARINE MEDICAL CENTER, NAVAL SUBMARINE BASE
Groton, Connecticut 06340

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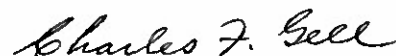
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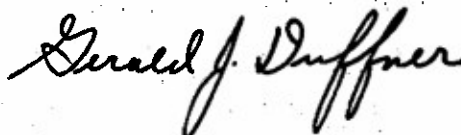


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SUMMARY PAGE

THE PROBLEM

Dental emergencies make up a large portion of the medical problems on FBM submarine patrols. Attempts by responsible Dental Corps officers to prevent these emergencies leads to the questioning of the applicability of some of the common treatment procedures for this isolated military population. One such treatment program is the retention of teeth with infected root canals and large areas of surrounding bone destruction.

FINDINGS

A case is described in which careful conservative endodontic treatment of two lower anterior teeth and complete removal of an extensive cyst involving these teeth resulted in retention of these teeth with no untoward effects even though the patient went on an FBM patrol almost immediately after the treatment.

APPLICATIONS

In selected cases, even extensive endodontic therapy can be performed in FBM submariners and may actually be indicated as the treatment of choice to prevent future prosthetic problems.

ADMINISTRATIVE INFORMATION

This investigation was conducted as a part of Bureau of Medicine and Surgery Research Work Unit MR005.19-6024—Effect of Stresses of Submarine Service on Oral Health. This report has been designated as No. 2 on this Work Unit, and was approved for publication as of 16 April 1968 as Memorandum Report No. 68-8.

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PUBLISHED BY THE NAVAL SUBMARINE MEDICAL CENTER

ABSTRACT

A case report is presented in which a submariner's dental condition presented a choice between (1) extraction of the lower anterior teeth and (2) extensive root canal fillings and wide removal of cystic material around these teeth. The man was an FBM crew member soon to go on patrol. The conservative root canal treatment was elected, even though this meant that stabilizing wires had to be in place during the patrol to hold the loose teeth in place. The patient suffered no ill effects and caused no dental problems on patrol. This case illustrates that the isolation of an FBM patrol does not necessarily preclude such extensive dental treatment in selected cases.

CONSERVATIVE MANAGEMENT OF MANDIBULAR INCISORS WITH A LARGE AREA OF BONE INVOLVEMENT: A CASE REPORT

INTRODUCTION

Periapical cysts are common of the oral cavity. Most appear confined to a single tooth with a minimal amount of bone destruction. Occasionally, multiple cysts coalesce to develop a large lesion. Some of these cases demand careful thought in treatment planning, particularly in military personnel whose duties take them away from dental facilities for long periods of time.

The following case report demonstrates some interesting results following treatment of such a case, employing standard endodontic and surgical procedures.

Case Report:

A 23-year old Caucasian male, First Class Petty Officer, in the Submarine Force of the U. S. Navy, presented himself for routine maintenance and treatment. In the course of examination, it was discovered that endodontic treatment was required for a lower central and lateral incisor. Both teeth tested non-vital with an electrical pulp tester. Radiographic examination revealed a radiolucent area directly related to the two non-vital teeth and involving four lower anterior teeth (Figure 1). Parenthetically, it was noted that the patient had five lower incisors. Past medical history was noncontributory with the exception of having received multiple facial blows during athletic encounters some



Figure 1. Roentgenographic evidence of bone destruction around the mandibular incisor teeth.

ten years ago. The patient had no knowledge of any problems in the area of concern.

The Surgery Department of the Dental Clinic, Submarine Base, New London, was consulted and it recommended the removal of three incisors followed by the construction of a prosthetic appliance. The size of the lesion and the isolated nature of the man's duties certainly tended to recommend this treatment plan; however, removal of the lesion along with all teeth involved would have resulted in a large bony defect making the construction of a satisfactory appliance extremely difficult. It was decided, therefore, to initiate endodontic therapy first and then to remove the lesion, hoping thereby to maintain the integrity of the dentition.

Prior to the surgical procedure, a wire ligature splint was placed from cuspid to cuspid. Self-polymerizing resin was applied to the wire for additional stability.

Employing local block and infiltration anesthesia, two vertical incisions were made; one over the right canine prominence, the other over the left lateral root area. A mucoperiosteal flap was reflected to expose the lesion. No bone burs were needed. The labial plate was eroded sufficiently to allow easy removal of cortical bone.

With some difficulty a multilobular, yellowish, soft, sponge-like mass was removed in sections. It completely enveloped the lower right lateral incisor; channeled beneath the right central incisor, involving its apex; and communicated with a similar lesion around the apical third of the supernumerary central incisor. Clinically, the appearance of the lesion was consistent with that of a periapical cyst. Final curettage involved four lower incisors and the mesial surface of the right cuspid. The right lateral incisor was essentially devoid of an alveolus; only the lingual plate of bone was intact. The lesion was, in fact, dramatic (Figure 2) and the prognosis after surgery was questionable with regard to maintaining all the teeth.



Figure 2. Bony defect after removal of the lesion.

Gelfoam was inserted into the defects. The flap was repositioned and six black silk 3-0 sutures were placed. A periodontal pack was applied labially.

Prophylactic penicillin, 250 mg every six hours for five days, was prescribed along with one-half grain of codeine for pain and an ice pack for the first four hours to prevent swelling.

Continued weekly examinations revealed normal healing. Sensitivity did develop on the root surface of the right central incisor, apparently due to the exposure of cementum. Palpation of the area presented first fluctuation and then firmer and firmer resistance as time elapsed, up to two months post-operative.

From the third to the fifth month post-operative no follow-up was possible because the patient went on a three-month submarine patrol. During the third month, however, another dentist removed and replaced the splint. In the fourth month, the patient himself removed the splint. The patient could eat well at this time and could use the lower anterior teeth for incising everything but very hard foods.

On the fifth month post-operatively, the patient was examined. All teeth involved were stable, immobile, and asymptomatic to percussion. Radiographic examination at this time revealed much bone regeneration in the area of the lesion. A representation of the lamina dura was visible around each tooth (Figure 3). Repair and mineralization seemed to be progressing well.



Figure 3. Roentgenographic evidence of bone regeneration, five months post-operative.

DISCUSSION

Some might have considered the prognosis of this case to be poor considering the endodontics involved, the extent of the cystic area, the denudation of bone around four teeth,¹ and the rather arduous isolated nature of the man's usual environment.^{2,3}

The treatment included well accepted, conservative endodontic and surgical principles and procedures. Adequate stabilization of the seven anterior teeth was provided. Complete debridement ensured healing and excellent repair of the defect. The systemic factors were probably also of great importance in this case.

The patient was a young, healthy male with apparently excellent resistance. He was cooperative and very conscientious, maintaining his oral hygiene meticulously (Figure 4).

SUMMARY

A case report of a periapical cyst of dramatic proportions has been presented. Treatment with standard endodontic and surgical procedures resulted in retaining all teeth concerned and maintaining the integrity of the dentition.

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Figure 4. Evidence of good clinical results and excellent oral hygiene, five months post-operative.

UNCLASSIFIED

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author) U.S. NAVAL SUBMARINE MEDICAL CENTER. Submarine Medical Research Laboratory		2a. REPORT SECURITY CLASSIFICATION UNCLASSIFIED	
		2b. GROUP	
3. REPORT TITLE Conservative Management of Mandibular Incisors With A Large Area of Bone Involvement: Report of A Case			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates) Interim report on Research Work Unit			
5. AUTHOR(S) (First name, middle initial, last name) LT John L. Giunta, DC, USNR, and LT Bruce W. Wisner, DC, USNR			
6. REPORT DATE 16 April 1968		7a. TOTAL NO. OF PAGES 3	7b. NO. OF REFS 3
8a. CONTRACT OR GRANT NO.		9a. ORIGINATOR'S REPORT NUMBER(S) Memorandum Report No. 68-8	
b. PROJECT NO. MR005.19-6024.02			
c.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.			
10. DISTRIBUTION STATEMENT This document has been approved for public release and sale; its distribution is unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY U.S. Naval Submarine Medical Center Box 600, Naval Submarine Base New London Groton, Connecticut 06340	
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DD FORM 1473 (PAGE 1)

1 NOV 65

S/N 0101-807-6801

UNCLASSIFIED

Security Classification

3ND PPSO 13152

14. KEY WORDS	LINK A		LINK B		LINK C	
	ROLE	WT	ROLE	WT	ROLE	WT
Endodontics Periapical cysts Personnel maintenance						